Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

HUMAN PHYSIOLOGY.*

A SOLID and instructive work like this is some compensation for the unlimited amount of trash with which we are all but daily inundated. We are only afraid that its substantial contents may be too much for the weak mental digestion of the greater part of our reading community, and that it will be only found in the hands of those with whom Physiology is a profession: and even amongst those there is a trading class, to whom it will be a dead letter, something with which they have nothing to do, notwithstanding, its importance to them, as Dr. Draper well sets forth, in the following terms:

> "To the medical profession, as matters now stand, nothing is of more importance than the dissemination of physiological knowledge. Empiricism could not flourish as it does if the structure and functions of the body of man were better understood. How many advantages would arise if the elements of this science were made a part of general education in America! What branch of knowledge has intrinsically a better title thereto? Is it at all to be wondered at that every kind of medical imposture prospers in communities where almost every one believes that a man has one rib less than a woman, and, even among persons pretending to education, scarcely one can be found who has a distinct idea of the size, shape, and position of his own stomach?
>
> "Such a diffusion of physiological knowledge would not only tend to a repression of empiricism, but would also exert an effect in raising the standard of acquirement among medical men themselves. That a great revolution is impending in the practice of medicine, no one, who is at all observant of the progress of science, can doubt. The great physicians of the future will be the great physiologists. He who can best correct the imperfections of a machine is he who best knows its structure and action."

Dr. Draper has here instinctively hit upon a truth which he might have more fully unfolded, by looking upon it in its historical bearings. We all know the fact that professors and professions have lost their prestige and potency; but to what is this due? To the commercial nature of both, to their having been turned away from their true and legitimate mission, and made agents of traffic—instruments of bread and butter—stepping-stones to worldly notoriety and comfort, and sign posts to arrest worldly attention and consideration. In this respect the priests of science have shared the fate of the priests of religion; both have forfeited the faith of the people, because both have been unworthy votaries of the gods they professed to adore. The true physician of the future, therefore, as Dr. Draper well says, will be the true physiologist—that is, the man of science united to the man of religion, in whom both functions will co-exist and co-operate.

We might consider Dr. Draper's work relatively to the wants of the community in which it has been written and published, and relatively to the scientific wants and requirements of the age. But the Doctor's own conception, as may be seen by the following extract, of the latter task is such as to confine our view to the former:

> "To write a complete treatise on physiology demands an extent of knowledge possessed by very few men. What science is there which is not involved in explaining our structure and functions? Anatomy, chemistry, zoology, botany, geology, the various branches of natural philosophy, which themselves require as their foundation, mathematics. Well, therefore, may the author of this book, in view of his own imperfections, as tried by such a standard, express his opinions with hesitation, and, at the conclusion of his labor, feel regret that he has ever undertaken a work, the execution of which, with even a moderate success, is so hard, and in which the detection of multitudes of imperfections is so easy."

We must here add, however, that a man might possess a very respectable knowledge of all these branches of science without being able to furnish much more than a learned compilation on the subject of physiology. What we want, and what we seldom possess, is a man of an original grasp of mind united to a great moral force of heart. Qualities that are inborn rather than acquired, and which are generally enumerated as marks of genius.

It is to be regretted that Dr. Draper did not furnish an outline of the historical growth and affiliation of medical doctrines and theories. The plan of the work, as may be seen by the following extract, would seem to have implied the necessity of this:

> "Throughout the work physiology is treated after the manner known in natural philosophy. It was chiefly, indeed, for the sake of aiding in the removal of the mysticism which has pervaded the science, that the author was induced to print this book. Alone, of all the great departments of knowledge, physiology still retains the metaphysical conceptions of the middle ages, from which astronomy and chemistry have made themselves free. To exorcise it from such nonenties as irritability, plastic power, vital force, is the duty of the rising generation of physicians. It is also their interest. Empiricism will never be banished from the practice of medicine until physiology is made an exact science."

It would not be very flattering to our race to say what physiology was anterior to Hippocrates, nor to our rapid progress of intellect to say what its course was from Hippocrates to Haller, who had the honor of converting it into a science, and of giving it the name it bears. From Vicq d'Azyr to Cl. Bernard, it has been enriched by the brilliant labors of Bichat and De Blainville, who have impressed on it its modern scope and tendencies.

There is no doubt that the progress of physiology would have been much greater, and more satisfactory, if its disciples had all agreed as to the methods to be employed in its study. Even at the present day the matter is in discussion, and most of the treatises published on the subject are quite as disputatious as expository. It is generally conceded in theory, though not consistently adhered to in practice, that the comparative and experimental method is alone in accordance with scientific doctrine. Mr. Huxley, in arguing against those who contend for comparsion alone, holds the following language, to which we subscribe:

---

* By Jno. Wm. Draper, M.D., LL.D. New York. Harper & Brothers.

> "Physiology not an experimental science! Why, there is not a function of a single organ in the body which has not been determined wholly and solely by experiment. How did Harvey determine the nature of the circulation, except by experiments? How did Sir Charles Bell determine the functions of the roots of the spinal nerves, save by experiment? How do we know the use of a nerve at all, except by experiment? Nay, how do you know even that your eye is your seeing apparatus, unless you make the experiment of shutting it; or that your ear is your hearing apparatus, unless you close it up, and thereby discover that you become deaf?"

Dr. Draper himself is not true to his own method, for he intermarries and confounds the theological and metaphysical methods with the scientific one, which he lays down in his preface, and which he believes to be important to avoid as a man of science. In this respect he may be said to follow in the wake of Professor Whewell, of Cambridge, who has given a mongrel caste to all his writings, by persisting in this course. The force of science, coupled with that of a sound brain, and a tone of moral independence, worthy of all admiration, have led Professor Powell to take an opposite course, which he explains in the following manner:

> "It will, however, hardly be denied that man, considered in his animal nature alone, is very little superior to brutes, and in some respects inferior. In the scale of mere animal organization the difference between the lowest human form and the highest monkey is not greater than between one class of monkey and another. Whatever difference of opinion may have arisen on this subject, of a moral and metaphysical kind, yet it is on all hands allowed that man has, to a certain extent, a nature in common with brutes: and we may avoid all cavil, if we simply assert that man, in so far as he partakes in a nature common to brutes, is along with them, in that respect, a part of the same scale and sytem of organized life. In so far as his animal nature, functions, and instincts are concerned, they are linked in the same chain of continuity with the order of other material existences."

The truth of this is to be seen in the happy results of both anatomy and physiology becoming comparative, and of embracing the whole animal and vegetable kingdoms. Well might Buffon say that if animals did not exist, man himself would be much more incomprehensible; and Pascal, that man is neither an angel nor a beast, but partakes of both. The whole series of existences is but one continuous chain, varied in its links, but not separated; and having a historical uniformity in space and time, which science is destined to unfold, and dissipate away the clouds of superstitious darkness that hang around it. The impatient and restless faculty of knowing is constantly groping its way into dark places and hidden corners, while the demonstrations of science are slowly pacing along, and are ever running behind it. A French authority has said:

> "To know as clearly as possible the *ensemble* of living and organized corporeal bodies, we must not distinguish them from each other by a few interior characteristics, so as to be able to give to each group, formed of bodies similar to each other, a particular name, then to observe apart a few individuals of each group, to dissect them, to describe their parts, internal as well as external, and to seek what are in each the functions of these parts. It is not even sufficient, afterwards, to aggregate together the groups resembling each other the most through their apparent characteristics, and to compare to each other, according to their aspect internally as well as externally, the parts evidently corresponding in species analogous to each other. It is not even sufficient to compare, in the various species, the functions of organs evidently of a similar nature. After the observation of external characteristics, after artificial and provisional classification—after the anatomy and physiology of species separately considered—after comparative anatomy and physiology—we must have philosophical anatomy and physiology; and finally, in order to complete all, we must have zoölogical philosophy preparing and proclaiming a rational classification."

Dr. Draper has divided his work into statical and dynamical physiology,—the one having reference to the structure of organized beings, both animal and vegetable; and the other to their functions. His twenty-five chapters on statical physiology will be found to embrace in clear and forcible language nearly all that is known on the subject, and to give a clear idea as to how far the mind has been enabled to see through the complicated net-work of the human body. Without being original in their scope and bearings, they bear the mature marks of severe culture and deep and solid acquirements. It is not, however, our intention to dwell on this part of his work, the other being much more interesting to our readers to cull from.

To study the functions of bodies as they are determined by their organs and through their modifications by external circumstances and agencies would seem to be the principal object of dynamical physiology. As yet, it would seem to us, that neither the nature of the human organism itself, nor that of its medium, have been sufficiently explored to say to what extent the one factor is affected by the other in their respective actions and re-actions on each other. Speaking of the plant, Dr. Draper says:

> "We have already shown that the power of moulding and grouping is inherent in the plant. In virtue of this, while it was yet in the ground, and therefore in the dark, the germ could put up its stem, and fashion its imperfect leaves; but it did not possess any power to gather nourishment beyond that which was stored up in the seed; and had that stock been exhausted before it reached the surface, it must have died."

Notwithstanding this admitted inherent power in the plant organism as well as in every other, on the part of Dr. Draper, yet he attributes more power to external agencies than we think they are entitled to. This is, however, no place for the discussion of such a knotty point.

To what extent crime is due to a man's circumstances, to his peculiarities of organization, to his lettered or unlettered state of mind, would be worthy of a more enlarged and enlightened study than it has ever received. Dr. Draper's views, as may be seen from the following extract, are in advance of those generally entertained.

> "The actions of man are closely connected with the physical and moral circumstances under which he is placed. The greatest number of crimes against persons and property is among the inhabitants of river-banks. The period of the maximum of crimes against persons coincides with that which is the minimum against property, and is the summer season. As respects each individual, his tendency to crime is, at first, against property, and this reaches its maximum at about twenty-five years of age, whereas the tendency to crime against persons commences later than that against property, and increases with the increase of strength. In crime man, as he grows older, substitutes stratagem for force. If brought up in a liberal profession, his tendency in crime is against persons, but that of the workman is against property. Elementary instruction, so far as reading and writing go, does not lead to the diminution, but rather to the increase of crime; a very important conclusion, more particularly in the United States, in many portions of which this kind of education is chiefly patronized by government, to the exclusion, to a certain extent, of that which is of a higher grade, and which serves to correct this important defect. Moreover, superficial education makes the mind a ready receptacle for every kind of imposture, and has been the cause of the rapid spread of many modern delusions, such as spiritualism and homœopathy."

This is all very true, Dr. Draper, statistically and affirmatively, but where is the physiological demonstration of it? We certainly think that there is a physiological key attached to the organisms of men by which we can unlock the nature and peculiarities of their thinking, feeling, and acting functions; and how and wherein these are modified by external circumstances and time. To the discovery of this key should be directed specially the attention of scientific men. It is by losing sight of this, and by falling into a mechanical mode of thinking and writing, that Dr. Draper has been led into the following assertion:

> "As regards women, their tendency to crime, when compared with that of men, is as twenty-three to one hundred; at least, this is the case in France. Their tendency for the perpetration of crimes against persons is less than that for crimes against property, in the proportion of sixteen to twenty-six. It is interesting to observe that the physical force of woman, as compared with that of man, is also as sixteen to twenty-six. From such considerations, it may, therefore, perhaps, be concluded that the morality of women is about the same as that of men, their physical feebleness and modesty being taken into account."

Now, we must again remind Dr. Draper that statistics have little value unless reflected in the mirror of science, and interpreted by a sound logical theory; it is in the physiology of woman, as compared to that of man, that we are to look for her moral superiority or equality to man, and not in the rough empirical results of statistics. Now, we would ask Dr. Draper if he is prepared to prove physiologically that man is the moral equal of woman; and that she is not physically equal to the commission of all the crime chargeable to our imperfect nature. Is not a bad woman's cunning, stratagem, and duplicity a match at any time for the brute power of man—does not man's sensual weakness make him a mere toy in her hands, a rough rug upon which to warm her tiny feet? To make her physical inability to perpetrate crime the cause of her moral standard, is to reverse the order of true scientific interpretation, and to cast the natural order of things into chaos. We are prepared to prove historically, Doctor, that woman has, through ages, by virtue of her superior moral physiology, been gradually redeeming man—dragging him out of the quagmire of his low appetites, and giving him a higher moral tone and tendency, notwithstanding the efforts legal, social, and conjugal, which he has made to degrade her.

To those who suffer from over irritation of the nerves as to the relative merits of the respective doctrines of the Pope, Martin Luther, John Calvin, etc., we beg to offer them the following panacea from Dr. Draper's work:

> "The passions of man are gratified in a manner that seems to be independent of religious profession. The open dissoluteness of one country is counterpoised by the secret crime of another. Protestant England and Catholic France exhibit a striking illustration. In the former, in 1845, the number of illegitimates was seventy per thousand, of the whole number of children born. In France it was about seventy-one."

Statistics have done much to enlighten men, and to give a wide extension to their charity in the formation of their opinions and judgments, but the moral application of science is destined to effect a reformation in this respect, which is but little dreamt of at present. Obliquity of opinion and judgment in the pulpit, at the bar, and by the fireside, is due to ignorance, to an inherited feebleness of brain, and a consequent narrowness and morbidity of heart. And these are peculiar to every race, nation, and religion, which the moral application of physiology might readily show. We, therefore, look forward to the philosophical study of dynamical physiology as most likely to demonstrate and to crystallize into a body of doctrine those moral instincts which have had occasional vague and poetical resurrections in the heart of humanity for thousands of years, and which have been mechanically echoed by millions without being very clearly understood.

◆

ENTHUSIASM.—Enthusiasm is the genius of sincerity, and truth accomplishes no victories without it.—*Bulwer.*